

REMARKS/ARGUMENT

I. General Remarks.

Claims 1-39 are pending in the present application. Claims 1-39 are rejected. Claim 26 is amended herein to correct for a typographical error noted by the Examiner. Applicants respectfully request that the above amendments be entered, and further request reconsideration in light of the amendments and remarks contained herein.

II. Remarks Regarding Double Patenting Rejection.

A. Applicants Petition to Withdraw Previously Submitted Terminal Disclaimer.

The Examiner has rejected claims 1-39 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,796,378 B2 (hereinafter "*Reddy*"). Applicants previously had filed a timely Terminal Disclaimer, with the appropriate fee, along with a prior Response, to overcome this rejection. In the Second Office Action, the Examiner indicated that this Terminal Disclaimer was being held in abeyance, pending evaluation by PTO personnel of the propriety of the Examiner's rejection. In the Response to the Second Office Action, Applicants requested withdrawal of the previously filed Terminal Disclaimer. In the Third Office Action, the Examiner failed to address this issue, despite Applicants' request for withdrawal while the Terminal Disclaimer was being held in abeyance. The Examiner has now requested in the Fourth Office Action that the Applicants must petition to withdraw the terminal disclaimer because it has already been approved. Applicants have now submitted a Petition to withdraw the Terminal Disclaimer herein.

B. Present Claims Do Not Constitute Double Patenting Over Reddy.

Reddy teaches "applying his cement composition comprising cationic polymer (cationic derivatized starch), calcium aluminate, water, and retarder (col. 2, line 46) for a well cement." (Fourth Office Action at 3.) Applicants respectfully assert that the Examiner has not shown *Reddy* to obviate claim 1, because, *inter alia*, the Examiner has not shown *Reddy* to disclose a method of cementing that comprises activating a cement composition, as required by Applicants' claim 1. As shown by the attached document, the addition of water to a cement slurry has been shown to increase thickening time, *e.g.* retard cement setting. (Trinity Technical Data Book, Table No. IX) Applicants have reproduced the pertinent data of Table No. IX in the attached document in the table as shown following.

Percent Water	Thickening Time, Hrs:Min. API Casing Cementing Test Schedules			
	Sch. 3 4,000 ft. (103°F)	Sch. 4 6,000 ft. (113°F)	Sch. 5 8,000 ft. (125°F)	Sch. 6 10,000 ft. (144°F)
65	4:45	3:15	2:05	1:07
75	5:35	3:46	2:17	1:20
85	6:10	4:07	2:35	1:30
95	6:52	4:25	2:51	1:42
105	7:42	4:45	3:06	1:50
115	8:20	5:06	3:27	1:58

As shown by the data in the table above, increasing the amount of water in a slurry increases the thickening time, even at varying temperatures. One of ordinary skill in the art would also deduce from the data that simply adding water would not activate a cement composition. Furthermore, the Examiner has not provided any evidence that water does, in fact, act as an activator. Hence, the Examiner has not shown that the addition of water is necessary to activate a cement composition. Thus, the present claims do not constitute double patenting over *Reddy*.

III. Remarks Regarding Rejections of Certain Claims Under 35 U.S.C. § 112, 2nd Paragraph.

A. Rejection of Claim 1 Pertaining to Activation of the Cement Composition.

The Examiner has rejected claim 1 as vague and indefinite “because the cement composition cannot be activated without water.” (Fourth Office Action at 3.) Applicants respectfully submit that water is not necessary for activation. As discussed previously in Section II.B., the addition of water to a cement slurry has been shown to increase thickening time, *e.g.* retard cement setting. (Trinity Technical Data Book, Table No. IX) Hence, one of ordinary skill in the art would agree that simply adding water would not activate a cement composition. Furthermore, the Examiner has not shown that the addition of water is necessary to activate a cement composition.

Additionally, Applicants respectfully assert that 35 U.S.C. § 112, 2nd paragraph does not require Applicants to recite the presence of water or any fluid in independent claim 1. The MANUAL OF PATENT EXAMINING PROCEDURE (hereinafter “MPEP”) reflects this in Section 2173.04:

Breadth of a claim is not to be equated with indefiniteness. *In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971). If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. 112, second paragraph.

(MPEP 2173.04.) Here, Applicants’ claim 1 recites “a cement composition comprising a hydraulic cement, a set retarder, and a particle-size distribution-adjusting agent.” Applicants respectfully assert that the subject matter of these claims is clear. Recitation of the presence of water or another fluid for activation of the cement composition is not necessary for the claims to be termed definite under 35 U.S.C. § 112, second paragraph. Inclusion of additional components (*e.g.*, water) is not necessary for the claims to be termed definite under 35 U.S.C. § 112, second paragraph. Applicants are not required to limit the scope of their claims to particular or preferred embodiments, and therefore need not recite additional compounds such as water in their independent claims. Applicants respectfully request that this rejection be withdrawn, and earnestly solicit a timely Notice of Allowance for these claims, and claims dependent therefrom.

B. Remarks Pertaining to the Term “Particle Size Distribution Adjusting Agent.”

In the First Office Action, the Examiner rejected claims 1 and 87 as indefinite for failing to particularly point out and distinctly claim what is meant by the term “particle size distribution adjusting agent.” *See* First Office Action, at 2.

Applicants responded to the First Office Action with arguments supporting Applicants’ position that the term “particle size distribution adjusting agent” is clearly defined in the specification. *See* Applicants’ Response to First Office Action, at 17. The Examiner has noted that Applicants have defined the term on page 20 of the specification as meaning *particle that are heavier than the settable fluid to which the particles are to be added*. (Fourth Office

Action at 4.) As the Examiner does not appear to have maintained this rejection in the Fourth Office Action, Applicants believe this rejection to have been withdrawn.

C. Rejection of Claims 14 and 25 Pertaining to the Term “Desired.”

The Examiner has rejected claims 14 and 25 as indefinite for use of the term “desired.” (Fourth Office Action at 4.) Applicants respectfully submit that this language is sufficiently definite to comply with 35 U.S.C. § 112. As noted above, “[t]he fact that claim language . . . may not be precise, does not automatically render the claim indefinite under 35 U.S.C. § 112, second paragraph. Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.” *See* MPEP § 2173.05(b) (citations omitted). Here, Applicants are aware of no prior art that would create any uncertainty as to the scope of the subject claims. Rather, one of ordinary skill in the art readily would ascertain, in light of Applicants’ disclosure, that to “enable the cement composition to achieve a desired compressive strength in a desired thickening time” (as recited in claim 14) describes attaining a compressive strength of a cement composition within the thickening time desired, *e.g.*, a compressive strength effective to accomplish the objectives of that particular use of the cement composition in the required thickening time from among those described in the specification. The Examiner has not shown that one of ordinary skill in the art, with the benefit of Applicants’ disclosure, readily would not recognize the scope of enabling “the cement composition to achieve a desired compressive strength in a desired thickening time.”

With respect to claim 25, one of ordinary skill in the art readily would ascertain, in light of Applicants’ disclosure, that particle-size distribution-adjusting agent in “an amount sufficient to adjust the particle-size distribution of the cement composition to a desired range” (as recited in claim 25) describes attaining a preferred range of the particle-size distribution-adjusting agent of a cement composition, *e.g.*, a range of particle-size distribution-adjusting agent effective to accomplish the objectives of that particular use of the cement composition from among those described in the specification. The Examiner has not shown that one of ordinary skill in the art, with the benefit of Applicants’ disclosure, readily would not recognize the scope of “an amount sufficient to adjust the particle-size distribution of the cement composition to a desired range.”

Accordingly, Applicants respectfully assert that the use of the term “desired” in the subject claims satisfies the requirements of 35 U.S.C. § 112, second paragraph. Applicants

respectfully request the withdrawal of the rejection hereunder against claims 14 and 25, and earnestly solicit the timely issuance of a Notice of Allowance for these claims.

D. Rejection of Claim 26 Pertaining to Antecedent Basis.

With respect to claim 26, the Examiner advises amending “the” cement composition to “a” cement composition because “the” cement composition lacks antecedent basis. (Fourth Office Action at 4.) Applicants have amended claim 26 accordingly to correct for this inadvertent error, and respectfully request the withdrawal of this rejection, and earnestly solicit the timely issuance of a Notice of Allowance for these claims.

E. Rejection of Claim 30 Pertaining to the Use of Parentheses.

With respect to claim 30, the Examiner advises deletion of the parentheses therein. Applicants respectfully submit that the use of parentheses to name poly(dimethyldiallylammonium chloride) is correct. Applicants respectfully request the withdrawal of this rejection, and earnestly solicit the timely issuance of a Notice of Allowance for these claims.

IV. Remarks Regarding Rejections of Claims 1-39 Under 35 U.S.C. §§ 102/103.

The Examiner has rejected claims 1-39 under 35 U.S.C. 102 (a and b) as anticipated by U.S. Patent No. 6,089,318 to Laramay et al. (“*Laramay*”), U.S. Patent No. 6,172,147 to Abelleira et al. (“*Abelleira*”), U.S. Patent No. 6,087,418 to Yamashita et al. (“*Yamashita*”), U.S. Patent No. 5,016,711 to Cowan (“*Cowan* ‘711’”), U.S. Patent No. 5,275,654 to Cowan (“*Cowan* ‘654’”), U.S. Patent No. 5,298,070 to Cowan (“*Cowan* ‘070’”), U.S. Patent No. 6,402,832 to Vijayendran (“*Vijayendran*”), U.S. Patent No. 5,112,603 to Nadolsky et al. (“*Nadolsky*”), U.S. Patent No. 4,393,939 to Smith et al. (“*Smith*”), U.S. Patent No. 3,508,407 to Booth (“*Booth*”), CN 1385388 to Lu et al. (“*Lu*”), JP2000191350 to Tobori et al. (“*Tobori*”), JP 09020536 to Tamura et al. (“*Tamura*”), JP06128001 to Mizunuma et al. (“*Mizunuma*”), JP 05043293 to Koizumi (“*Koizumi*”), JP 61256956 to Yamaguchi et al. (“*Yamaguchi*”), JP 59109663 to Takenaka Komuten Co. (“*Takenaka Co.*”), and DE 3213799 to Borchardt et al. (“*Borchardt*”), known collectively as the “Cited References.” Alternatively, the Examiner has rejected claims 1-39 under 35 U.S.C. 103 as obviated by the Cited References alone or in view of U.S. Patent No. 5,588,488 to Vijn et al. (“*Vijn*”) or U.S. Patent No. 5,672,203 to Chatterji et al. (“*Chatterji*”).

A. The Cited References Do Not Anticipate The Present Claims.

Applicants respectfully point out to the Examiner that Applicants' independent claim 1 includes a limitation requiring activation of a cement composition, and that the Examiner has not shown that any of the Cited References disclose the step of activating the cement composition, which is expressly required by Applicants' claim 1. The Examiner states that "[w]ater is the activating agent for a cement composition and all cement compositions must contain water to activate the hydraulic properties and lead to a settable material. All of the prior art references teach adding water to their cement composition and thus teach 'activating' their cement composition." Applicants respectfully disagree. As discussed previously in Section II.B., the addition of water to a cement slurry has been shown to increase thickening time, *i.e.* retard cement setting. (Trinity Technical Data Book, Table No. IX) The data from the Trinity Technical Data Book indicates that the addition of water, in fact, does not activate a cement slurry. Furthermore, the Examiner has not pointed to any evidence that water does act as an activator. Hence, the Examiner has not shown that one of ordinary skill in the art would agree that simply adding water would activate a cement composition.

For any of the references cited to anticipate Applicants' independent claim 1 under 35 U.S.C. §102(b), the reference must teach or suggest each and every limitation of the subject claim. MPEP § 2131. Applicants respectfully assert that none of the references have been shown to teach the step of activating the cement composition, and thus the Examiner has failed to show that any of these references teaches or suggests every element of Applicants' independent claim 1. Accordingly, Applicants respectfully submit that none of these References has been shown to anticipate Applicants' independent claim 1.

Applicants appreciate the Examiner's suggestion that Applicants should consider inserting the term "cationic polymer" into independent claim 1. (Fourth Office Action at 7.) However, Applicants respectfully decline to do so, in view of the fact that the Examiner has still failed to cite any reference showing activation of a cement composition.

Because the Examiner has not shown that any of the references cited in discloses the step of activation of a cement composition, Applicants respectfully request that the rejections of claims 1-39 based upon these references be withdrawn, and respectfully request a Notice of Allowance for these claims. Should a rejection based on these assertions be maintained, Applicants respectfully request evidentiary support. If the Examiner is relying upon "common

knowledge” or “well known” principles to supply the motivation to combine, Applicants request that a reference be provided in support of this position pursuant to MPEP § 2144.03. Alternatively, if the Examiner’s personal knowledge is being relied on to supply the disclosure of the motivation to combine, Applicants respectfully request that an affidavit supporting such facts be provided pursuant to MPEP § 2144.03 and 37 C.F.R. § 1.104(d)(2).

B. The Cited References In View Of *Vijn* Or *Chatterji* Do Not Obviate The Present Claims.

The Cited References in view of *Vijn* or *Chatterji* do not obviate the claims of the present application. As discussed previously in Section IV.A., none of the Cited References teach a step of activating the cement composition. Nor can *Vijn* or *Chatterji* be used to supply this missing recitation. The Examiner relies on *Vijn* and *Chatterji* for the teaching of a retarder (Fourth Office Action at 5.) Accordingly, the Cited References in view of *Vijn* or *Chatterji* do not teach the step of “activating the cement composition” as recited in claim 1 and thus do not disclose or suggest every element of independent claim 1.

Therefore, independent claim 1 is not obviated by the Cited References in view of *Vijn* or *Chatterji*. The remaining rejected claims depend either directly or indirectly on independent claim 1. All these dependent claims, which include all the limitations of their corresponding independent claim, are allowable for at least the reasons cited above with respect to independent claim 1. Accordingly, Applicants respectfully request withdrawal of this rejection with respect to claims 1-39.

V. Remarks Regarding Examiner’s Response to Arguments.

A. Present Application Is Directed To Subterranean Formations From Which Hydrocarbons Are Removed.

In the Response to the Second Office Action, Applicants argued that *Vijayendran*, *Nadolsky*, *Lu*, *Tobori*, *Tamura*, *Mizunuma*, *Koizumi*, *Yamaguchi*, and *Takenaka Co.* do not teach placement in a subterranean formation. With respect to the references that teach wall board compositions, the Examiner stated in the Fourth Office Action that “wallboard such as gypsum wallboard is likely placed in a subterranean formation on a daily basis in the construction industry. Drywall or gypsum wallboard is often used to create a finished basement for homeowners. A basement is a subterranean formation as it is sub (below) the terra (earth or ground level).” (Fourth Office Action at 6.) Applicants respectfully submit that the present application is directed to subterranean formations from which hydrocarbons are removed.

Support for this can be found throughout the Specification, for example in paragraphs [0002], [0003], and [0037]. Thus, the references have not been shown to be relevant.

B. Booth Does Not Obviate Present Claims.

With respect to the *Booth* reference, which teaches a process for backfilling mines, the Examiner states:

. . . Booth does teach adding a cationic polymer (particle size distribution adjusting agent) and water (activating agent for cement). The applicants argue that Booth does not teach adding a retarder. Yet, a retarder is a conventional additive to virtually any cement composition and the addition of a retarder would have been an obvious design choice for one of ordinary skill in the art.

(Fourth Office Action at 7.) Applicants respectfully submit that the addition of a retarder to the cement composition in *Booth* is not obvious to one of ordinary skill in the art. *Booth* is directed to backfilling mines, in which there is no realistic need for a retarder. Accordingly, to obviate the subject claims, *Booth* must teach or suggest compositions that comprise retarders, or other compounds that inherently or expressly constitute retarding agents. *Booth* discloses none of these. Furthermore, the Examiner provides no reference stating that cement compositions for backfilling mines would necessitate the addition of a retarder.

C. Subject Claims Are Sufficiently Definite Under 35 U.S.C. 112, 2nd Paragraph.

With respect to the term “particle-size distribution adjusting agent,” the Examiner states:

While the applicants mean a cationic polymer, they are not actually claiming that in claim 1 and it is improper to read the limitations of their specification or dependent claims (teaching cationic polymer) into claim 1. Therefore, this term can also be interpreted to mean a substance such as water, a thickener, a dispersant or surfactant, etc. or any substance that can potentially have an effect on particle size distribution. Each one of these conventional additives as well as potentially others not mentioned can adjust particle size distribution. Applicants may again consider at the very least the insertion of cationic polymer into claim 1 to avoid these broad but permissible interpretations of a particle size distribution adjusting agent.

(Office Action at 7.) Applicants respectfully assert that the subject claims are sufficiently definite under 35 U.S.C. 112, 2nd paragraph, because the term “particle size distribution

adjusting agent” is clearly defined in the specification, and is not ambiguous. The term “particle size distribution adjusting agent” refers to any compound that, when added to a settable fluid, adjusts the distribution of the sizes of particles in the settable fluid. This is made clear in Applicants’ specification, where Applicants state that “[t]he particle-size distribution adjusting agent . . . may be any compound that desirably affects the particle-size distribution of the settable fluid such that the settable fluid’s rheology remains desirably stable for a chosen period of time.” (Specification, paragraph [0027].) Applicants respectfully submit that this definition is clear and not improper. Accordingly, Applicants respectfully submit that those of ordinary skill, having read Applicants’ disclosure, readily will recognize the scope of the subject matter embraced by Applicants’ claim 1.

Regarding the Examiner’s comment that Applicants must include “cationic polymer” in their independent claims, a cationic polymer is only an example of a particle-size distribution-adjusting agent. Applicants need not limit their claims to only one embodiment disclosed in the specification. *In re Rasmussen*, 650 F.2d 1212, 1215 (C.C.P.A. 1981) (“[A] claim may be broader than the specific embodiment disclosed in a specification.”)

As to the Examiner’s comment that the term “particle-size distribution-adjusting agent” could read on water, Applicants respectfully assert that it could not. For example, for a given aqueous slurry of compounds having a given particle size distribution, the addition of water will only dilute the slurry. The size distribution of particles within the slurry will be entirely unaffected by the addition of water. Accordingly, water is not a particle-size distribution-adjusting agent, as that term is used in Applicants’ application.

Because Applicants have shown that claim 1 meets the requirements of definiteness under 35 U.S.C. § 112, second paragraph, without the need for further amendment to such claims, Applicants respectfully request that this rejection be withdrawn, and earnestly solicit a timely Notice of Allowance for these claims, and claims dependent therefrom.

VI. No Waiver.

All of Applicants’ arguments and amendments are without prejudice or disclaimer. Additionally, Applicants have merely discussed example distinctions from the Cited References. Other distinctions may exist, and Applicants reserve the right to discuss these additional distinctions in a later Response or on Appeal, if appropriate. By not responding to additional statements made by the Examiner, Applicants do not acquiesce to the Examiner’s

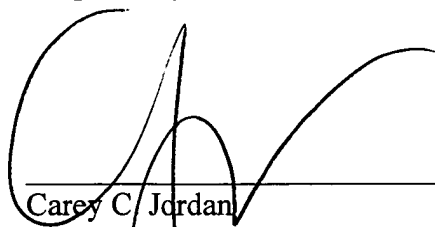
additional statements, such as, for example, any statements relating to what would be obvious to a person of ordinary skill in the art. The example distinctions discussed by Applicants are sufficient to overcome the anticipation and obviousness rejections.

SUMMARY

In light of the above amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections. Applicants further submit that the application is now in condition for allowance, and earnestly solicit timely notice of the same. Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the attorney of record by telephone, facsimile, or electronic mail.

Applicants believe that there are no additional fees due in association with this filing of this Response. However, should the Commissioner deem that any fees are due, Applicants respectfully request that the Commissioner accept this as a Petition Therefor, and direct that any additional fees be charged to Baker Botts L.L.P.'s Deposit Account No. 02-0383, Order Number 063718.0359.

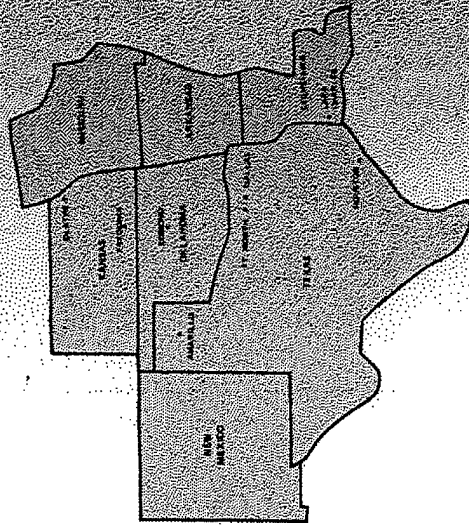
Respectfully submitted,



Carey C. Jordan
Registration No. 47,646
BAKER BOTTS L.L.P.
One Shell Plaza
910 Louisiana
Houston, TX 77002
Telephone: 713.229.1233
Facsimile: 713.229.7833

Date: May 5, 2006

The Trinity Territory



Trinity Lite-Wate and Trinity Special, API Class "H" Oilwell Cements are available through all major service companies in this area.

TRINITY SULPHATE RESISTANT OIL WELL CEMENTS



TECHNICAL DATA BOOK T-64

TRINITY
PORTLAND CEMENT DIVISION
GENERAL PORTLAND CEMENT COMPANY
DALLAS • FT. WORTH • HOUSTON



BEST AVAILABLE COPY

TRINITY SALES OFFICES

DALLAS

1700 Republic National Bank Building
P. O. Box 2698, Dallas, Texas 75221
Telephone: RI 2-8111


HOUSTON

2238 Bank of the Southwest Building
Houston, Texas 77002
Telephone: CA 7-9232

FORT WORTH

1020 Ft. Worth National Bank Building
Fort Worth, Texas 76102
Telephone: ED 5-4555

AMARILLO

East Third and Lakeside
P. O. Box 5486, Amarillo, Texas 79107
Telephone:  DR 2-8247
DR 2-8309

LAKE CHARLES, LA.

P. O. Drawer 67
West Lake, Louisiana 70669
Telephone: 436-3386

In Oklahoma TRINITY LITE-WATE can also be ordered through General Portland Cement Company's Victor Division, Sales Office, 418 Commerce Exchange Building, Oklahoma City, Oklahoma, Telephone CE 2-1606.

Additional technical information on Trinity oil well cements or other Trinity products is available upon request. Write Dallas Sales Office or contact your nearest Trinity representative.



PHONE RIVERBIDE 2-8111
HOME FE 9-9553



FRED A. EICHORN, JR.

CHEMICAL ENGINEER

TECHNICAL REPRESENTATIVE

1700 REPUBLIC BANK BUILDING
P. O. BOX 2698

DALLAS, TEXAS 75221

TRINITY
PORTLAND CEMENT DIVISION
General Portland Cement Company

of the Trinity Research Laboratory in Houston, Texas. These data have been checked with field performance and found to be reliable.

All tests were run in accordance with A.P.I. R.P. 10B "Recommended Practice for Testing Oil Well Cements and Cement Additives" (Thirteenth Edition, March, 1964).

COMPATIBILITY

TRINITY INFERNO and TRINITY LITE-WATE have been successfully used with all known commonly used cement retarders, accelerators, fluid loss additives and friction reducers. For special use of any particular additive, consult your service company.

BEST AVAILABLE COPY

TRINITY INFERNO CEMENT

CONTENTS

	PAGE
Specifications, Chemical Analysis and Physical Tests.....	3
Sulphate Resistant	4
Table No. I—Inferno 38% and 40% Mixing Water.....	5
Table No. II—Inferno with Bentonite.....	6-7
Chart No. 1—Age vs Strength, 140°F.....	8
Chart No. 2—Age vs Strength, 170°F.....	9
Chart No. 3—Age vs Strength, 200°F.....	10
Chart No. 4—Age vs Strength, 230°F.....	11
Chart No. 5—Water Content vs Strength, 140°F.....	12
Chart No. 6—Water Content vs Strength, 170°F.....	13
Chart No. 7—Water Content vs Strength, 200°F.....	14
Chart No. 8—Water Content vs Strength, 230°F.....	15
Table No. III—Inferno with Calcium Chloride.....	16
Table No. IV—Inferno with Ilmenite Ore.....	17
Table No. V—Inferno with Salt, Squeeze Cementing Schedules	17
Table No. VI—Inferno with Salt, Pounds per sack basis	18
Table No. VII—Inferno with Salt, Based on Weight of Water.....	19
Table No. VIII—Inferno with Diacel "D".....	20
Summary—Advantages of Using Inferno.....	21



TRINITY INFERNO CEMENT

SPECIFICATIONS

Trinity Inferno meets A.P.I. Specifications for Oil Well Cements, Class D and E (High Sulphate-Resistant Type.)

TYPICAL CHEMICAL ANALYSIS

Oxides	Compound Composition
SiO ₂	22.1% C ₃ S 49.0%
Al ₂ O ₃	4.5% C ₂ S 26.5%
Fe ₂ O ₃	5.7% C ₃ A 2.3%
CaO	62.9% C ₄ AF 17.3%
SO ₃	1.9% CaSO ₄ 3.2%
MgO	1.4% Free CaO 0.2%
Loss	1.0% Insoluble Residue. 0.1%

PHYSICAL TESTS

Specific Gravity	3.14
Autoclave Expansion	0.02%
Wagner Surface Area.....	1420 cm ² /gm
325 Mesh Fineness, % Passing.....	75.0
Absolute Volume of one cu. ft. or 94 lb. sack 3.6 gal. or 0.48 cu. ft.	



TABLE NO. IX
TRINITY LITE-WATE CEMENT
GENERAL SLURRY PROPERTIES

Slurry Weight and volume are calculated on the basis of Lite-Wate specific gravity of 2.80. Dry volume 75 lbs. per cu. ft. (sack). Absolute volume 3.22 gallons or 0.43 cu. ft.

Thickening Times

Percent Water	Slurry Weight #/Gal.	Initial Viscosity Poises	Thickening Time, Hrs: Min. API Casing Cementing Test Schedules			
			Sch. 3 4,000 ft. (103° F)	Sch. 4 6,000 ft. (113° F)	Sch. 5 8,000 ft. (125° F)	Sch. 6 10,000 ft. (144° F)
65	13.66	24	4:45	3:15	2:05	1:07
75	13.18	8	5:35	3:46	2:17	1:20
85	12.77	6	6:10	4:07	2:35	1:30
95	12.44	5	6:52	4:25	2:51	1:42
105	12.14	4	7:42	4:45	3:06	1:50
115	11.89	3	8:20	5:06	3:27	1:58

COMPRESSIVE STRENGTHS

WATER		Slurry Weight #/Gal.	Slurry Yield Cu. Ft. Sack	Compressive Strength psi of 2" Cubes Cured for 24 & 72 Hours at Atmospheric Pressure					
				100° F		120° F		140° F	
%	Gal. per Sk.			24	72	24	72	24	72
65	5.85	13.66	1.21	1083	2825	3250	3483	3283	3525
75	6.75	13.18	1.33	908	2275	2384	2717	2667	3000
85	7.65	12.77	1.45	631	1800	1450	2017	1775	2108
95	8.55	12.44	1.57	414	1367	1150	1517	1483	1725
105	9.45	12.14 *	1.69	275	1083	917	1242	1242	1333
115	10.35	11.89	1.81	220	917	675	967	995	1000